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TITLE : METHOD FOR CUTTING GLASS SUBSTRATE AND DEVICE THEREFOR

ABSTRACT : PROBLEM TO BE SOLVED: To make it possible to activate the formation of microcracks, to increase a cutting speed and to improve productivity by heating a cutting part by irradiation with a laser beam which is uniform in energy density and has a longitudinally long shape in the spot in a crossing direction, then rapidly cooling the cutting part.

SOLUTION: The laser beam of the longitudinally long shape is preferably a rectangular shape or elliptic shape and the length in a major axis direction is preferably made longer by about 15 to 25 times than that in a minor axis direction. A heating stage and a cooling stage are repeated at least ≥ 2 times to impart thermal impact. The cutting device has a table to be mounted with a glass substrate, a laser beam generating means which is disposed in the upper part thereof, a lens unit for convergence and acceleration of the laser beam and a cooling means for rapid cooling of the cutting section. The lens unit consists of a first lens group for changing the laser beam to parallel beams and a second lens group for changing the laser beam to the longitudinally long shape in the cutting direction of the glass substrate.

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